



SEQUENCE LISTING

<110> Shyjan, Andrew W.

<120> COMPOSITIONS AND METHODS FOR THE DIAGNOSIS, PREVENTION
AND TREATMENT OF TUMOR PROGRESSION

<130> 07334/004002

<140> US 08/862,442

<141> 1997-05-23

<150> US 08/623,679

<151> 1996-03-29

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<213> Mus musculus

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<220>

<221> CDS

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ctaacagatg	ttgctgtggt	cagctcacta	accagcacat	ccccctttg	ccgagtggg	180
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gat tcc ctg ctc cac ctc atg gtg aag gac tgg cag ctg gag ctc ccg						401
Asp Ser Leu Leu His Leu Met Val Lys Asp Trp Gln Leu Glu Leu Pro						
	15		20		25	
aag ctc ttg ata tct gtg cac gga ggc ctc caa agc ttc gag atg cag						449
Lys Leu Leu Ile Ser Val His Gly Gly Leu Gln Ser Phe Glu Met Gln						
	30		35		40	
tcc aaa ctg aag cag gtg ttt ggg aaa ggt ctg atc aag gct gcc atg						497
Ser Lys Leu Lys Gln Val Phe Gly Lys Gly Leu Ile Lys Ala Ala Met						
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acc acg ggg gcg tgg atc ttc acc ggg ggt gtg agc act ggt gtc gtc 545
 Thr Thr Gly Ala Trp Ile Phe Thr Gly Gly Val Ser Thr Gly Val Val
 60 65 70 75

agc cat gtg ggg gat gcc ttg aaa gac cac tcc tcc aag tcc aga ggc 593
 Ser His Val Gly Asp Ala Leu Lys Asp His Ser Ser Lys Ser Arg Gly
 80 85 90

cgg ctc tgt gct ata gga att gct ccc tgg ggc atg gtg gag aac aag 641
 Arg Leu Cys Ala Ile Gly Ile Ala Pro Trp Gly Met Val Glu Asn Lys
 95 100 105

gaa gac ctg att gga aaa gat gta aca aga gtc tat cag acc atg tcc 689
 Glu Asp Leu Ile Gly Lys Asp Val Thr Arg Val Tyr Gln Thr Met Ser
 110 115 120

aac cct ctg agc aag ctc tct gtg ctc aac aat tcc cac act cac ttc 737
 Asn Pro Leu Ser Lys Leu Ser Val Leu Asn Asn Ser His Thr His Phe
 125 130 135

atc ttg gct gac aac ggc acc ctg ggc aag tat ggt gct gag gtg aag 785
 Ile Leu Ala Asp Asn Gly Thr Leu Gly Lys Tyr Gly Ala Glu Val Lys
 140 145 150 155

ctt cga aga cag ctg gaa aaa cac atc tcc ctg cag aag atc aac aca 833
 Leu Arg Arg Gln Leu Glu Lys His Ile Ser Leu Gln Lys Ile Asn Thr
 160 165 170

agg ctg ggc cag ggt gta cct gtc gtg ggc cta gtg gta gaa ggt ggt 881
 Arg Leu Gly Gln Gly Val Pro Val Val Gly Leu Val Val Glu Gly Gly
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cct aac gtg gtt tct atc gtc ctg gag tat ctc aaa gaa gac cct cct 929
 Pro Asn Val Val Ser Ile Val Leu Glu Tyr Leu Lys Glu Asp Pro Pro
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D1 gtc cct gtg gtg gtt tgc gat ggc agt gga cgt gcc tct gac att ttg 977
 Val Pro Val Val Val Cys Asp Gly Ser Gly Arg Ala Ser Asp Ile Leu
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tcc ttc gca cac aaa tac tgc gac gaa gga gga gtc ata aac gag tcc 1025
 Ser Phe Ala His Lys Tyr Cys Asp Glu Gly Gly Val Ile Asn Glu Ser
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ctg cgg gac cag ctt cta gtt acc att cag aaa aca ttt aat tac agc 1073
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 255 260 265

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gat gtc gag atg gca att tta act gcc ttg ctc aaa gga acc aac gca 1217
 Asp Val Glu Met Ala Ile Leu Thr Ala Leu Leu Lys Gly Thr Asn Ala
 285 290 295

tca gct cca gat cag ctg agc ttg gcc ctg gct tgg aac cgg gtc gac 1265
 Ser Ala Pro Asp Gln Leu Ser Leu Ala Leu Ala Trp Asn Arg Val Asp 315
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 ata gcg cga agc cag atc ttc gtc ttt ggc cca cac tgg ccg cca ctg 1313
 Ile Ala Arg Ser Gln Ile Phe Val Phe Gly Pro His Trp Pro Pro Leu 330
 320 325
 gga agc ctg gcc cct cct gtg gac acc aaa gcc gca gag aag gaa aag 1361
 Gly Ser Leu Ala Pro Pro Val Asp Thr Lys Ala Ala Glu Lys Glu Lys 345
 335 340
 aag cca ccc aca gcc acc acc aag ggg aga gga aaa gga aaa ggc aag 1409
 Lys Pro Pro Thr Ala Thr Thr Lys Gly Arg Gly Lys Gly Lys Gly Lys 360
 350 355
 aag aaa ggc aaa gtg aaa gag gaa gtg gag gaa gag acg gac ccc cgg 1457
 Lys Lys Gly Lys Val Lys Glu Glu Val Glu Glu Glu Thr Asp Pro Arg 375
 365 370
 aag ctt gag ctg ctc aac tgg gtg aat gcc ctg gag caa gcc atg ctg 1505
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 Asp Ala Leu Val Leu Asp Arg Val Asp Phe Val Lys Leu Leu Ile Glu 410
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 aac gga gtg aac atg cag cat ttc ctc acc atc ccg agg ctg gag gag 1601
 Asn Gly Val Asn Met Gln His Phe Leu Thr Ile Pro Arg Leu Glu Glu 425
 415 420
 cta tac aac acc aga ctg ggc cca cca aac acc ctt cat ctg ctg gtg 1649
 Leu Tyr Asn Thr Arg Leu Gly Pro Pro Asn Thr Leu His Leu Leu Val 440
 430 435
 cgg gat gta aag aag agc aac ctt cca cct gat tac cac atc agc ctc 1697
 Arg Asp Val Lys Lys Ser Asn Leu Pro Pro Asp Tyr His Ile Ser Leu 455
 445 450
 att gat ata gga ctg gtg ctg gag tac ctc atg ggc ggt gcc tac cgc 1745
 Ile Asp Ile Gly Leu Val Leu Glu Tyr Leu Met Gly Gly Ala Tyr Arg 475
 460 465 470
 tgc aac tac act cgg aaa agc ttc cgg act ctc tac aac aac ttg ttt 1793
 Cys Asn Tyr Thr Arg Lys Ser Phe Arg Thr Leu Tyr Asn Asn Leu Phe 490
 480 485
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 Gly Pro Lys Arg Val Glu Leu Ser Arg His Thr Val Ser Cys Ala Ser 505
 495 500
 cag agt aac atg tgg ttc ctt gat gtg ctt ccc caa aag ccc acc tgt 1889
 Gln Ser Asn Met Trp Phe Leu Asp Val Leu Pro Gln Lys Pro Thr Cys 520
 510 515
 gca gaa tgc aac tct tca cct cac ctg tcc caa act gac atc acc cca 1937
 Ala Glu Cys Asn Ser Ser Pro His Leu Ser Gln Thr Asp Ile Thr Pro 535
 525 530

cct ctg ccc tgacacccag tgcagggcct cctagctttc acatgcagcc
 Pro Leu Pro
 540

1986

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Val	His	Gly	Gly	Leu	Gln	Ser	Phe	Glu	Met	Gln	Ser	Lys	Leu	Lys	Gln
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Val	Phe	Gly	Lys	Gly	Leu	Ile	Lys	Ala	Ala	Met	Thr	Thr	Gly	Ala	Trp
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Ala	Leu	Lys	Asp	His	Ser	Ser	Lys	Ser	Arg	Gly	Arg	Leu	Cys	Ala	Ile
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Gly	Ile	Ala	Pro	Trp	Gly	Met	Val	Glu	Asn	Lys	Glu	Asp	Leu	Ile	Gly
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Lys	Asp	Val	Thr	Arg	Val	Tyr	Gln	Thr	Met	Ser	Asn	Pro	Leu	Ser	Lys
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Glu	Lys	His	Ile	Ser	Leu	Gln	Lys	Ile	Asn	Thr	Arg	Leu	Gly	Gln	Gly
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Val	Pro	Val	Val	Gly	Leu	Val	Val	Glu	Gly	Gly	Pro	Asn	Val	Val	Ser
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Ile	Val	Leu	Glu	Tyr	Leu	Lys	Glu	Asp	Pro	Pro	Val	Pro	Val	Val	Val
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Thr	Val	Phe	Arg	Met	Gly	Ser	Glu	Gly	Gln	Gln	Asp	Val	Glu	Met	Ala
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Ile	Leu	Thr	Ala	Leu	Leu	Lys	Gly	Thr	Asn	Ala	Ser	Ala	Pro	Asp	Gln
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Leu Ser Leu Ala Leu Ala Trp Asn Arg Val Asp Ile Ala Arg Ser Gln
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 Lys Glu Glu Val Glu Glu Glu Thr Asp Pro Arg Lys Leu Glu Leu Leu
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 Asn Trp Val Asn Ala Leu Glu Gln Ala Met Leu Asp Ala Leu Val Leu
 385 390 395 400
 Asp Arg Val Asp Phe Val Lys Leu Leu Ile Glu Asn Gly Val Asn Met
 405 410 415
 Gln His Phe Leu Thr Ile Pro Arg Leu Glu Glu Leu Tyr Asn Thr Arg
 420 425 430
 Leu Gly Pro Pro Asn Thr Leu His Leu Leu Val Arg Asp Val Lys Lys
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 Ser Asn Leu Pro Pro Asp Tyr His Ile Ser Leu Ile Asp Ile Gly Leu
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 Val Leu Glu Tyr Leu Met Gly Gly Ala Tyr Arg Cys Asn Tyr Thr Arg
 465 470 475 480
 Lys Ser Phe Arg Thr Leu Tyr Asn Asn Leu Phe Gly Pro Lys Arg Val
 485 490 495
 Glu Leu Ser Arg His Thr Val Ser Cys Ala Ser Gln Ser Asn Met Trp
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23

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Val Ser Tyr Asp Thr Lys Pro Asp Ser Leu Leu His Leu Met Val Lys						
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gat tgg cag ctg gaa ctc ccc aag ctc tta ata tct gtg cat gga ggc						453
Asp Trp Gln Leu Glu Leu Pro Lys Leu Leu Ile Ser Val His Gly Gly						
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ctc cag aac ttt gag atg cag ccc aag ctg aaa caa gtc ttt ggg aaa						501
Leu Gln Asn Phe Glu Met Gln Pro Lys Leu Lys Gln Val Phe Gly Lys						
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ggc ctg atc aag gct gct atg acc acc ggg gcc tgg atc ttc acc ggg						549
Gly Leu Ile Lys Ala Ala Met Thr Thr Gly Ala Trp Ile Phe Thr Gly						
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ggt gtc agc aca ggt gtt atc agc cac gta ggg gat gcc ttg aaa gac						597
Gly Val Ser Thr Gly Val Ile Ser His Val Gly Asp Ala Leu Lys Asp						
	70		75		80	
cac tcc tcc aag tcc aga ggc cgg gtt tgt gct ata gga att gct cca						645
His Ser Ser Lys Ser Arg Gly Arg Val Cys Ala Ile Gly Ile Ala Pro						
	85		90		95	100
tgg ggc atc gtg gag aat aag gaa gac ctg gtt gga aag gat gta aca						693
Trp Gly Ile Val Glu Asn Lys Glu Asp Leu Val Gly Lys Asp Val Thr						
	105		110		115	
aga gtg tac cag acc atg tcc aac cct cta agt aag ctc tct gtg ctc						741
Arg Val Tyr Gln Thr Met Ser Asn Pro Leu Ser Lys Leu Ser Val Leu						
	120		125		130	
aac aac tcc cac acc cac ttc atc ctg gct gac aat ggc acc ctg ggc						789
Asn Asn Ser His Thr His Phe Ile Leu Ala Asp Asn Gly Thr Leu Gly						
	135		140		145	
aag tat ggc gcc gag gtg aag ctg cga agg ctg ctg gaa aag cac atc						837
Lys Tyr Gly Ala Glu Val Lys Leu Arg Arg Leu Leu Glu Lys His Ile						
	150		155		160	
tcc ctc cag aag atc aac aca aga ctg ggg cag ggc gtg ccc ctc gtg						885
Ser Leu Gln Lys Ile Asn Thr Arg Leu Gly Gln Gly Val Pro Leu Val						
	165		170		175	180
ggt ctc gtg gtg gag ggg ggc cct aac gtg gtg tcc atc gtc ttg gaa						933
Gly Leu Val Val Glu Gly Gly Pro Asn Val Val Ser Ile Val Leu Glu						
	185		190		195	
tac ctg caa gaa gag cct ccc atc cct gtg gtg att tgt gat ggc agc						981
Tyr Leu Gln Glu Pro Pro Ile Pro Val Val Ile Cys Asp Gly Ser						
	200		205		210	

gga cgt gcc tcg gac atc ctg tcc ttt gcg cac aag tac tgt gaa gaa 1029
 Gly Arg Ala Ser Asp Il Leu Ser Phe Ala His Lys Tyr Cys Glu Glu
 215 220 225

ggc gga ata ata aat gag tcc ctc agg gag cag ctt cta gtt acc att 1077
 Gly Gly Ile Ile Asn Glu Ser Leu Arg Glu Gln Leu Leu Val Thr Ile
 230 235 240

cag aaa aca ttt aat tat aat aag gca caa tca cat cag ctg ttt gca 1125
 Gln Lys Thr Phe Asn Tyr Asn Lys Ala Gln Ser His Gln Leu Phe Ala
 245 250 255 260

att ata atg gag tgc atg aag aag aaa gaa ctc gtc act gtg ttc aga 1173
 Ile Ile Met Glu Cys Met Lys Lys Lys Glu Leu Val Thr Val Phe Arg
 265 270 275

atg ggt tct gag ggc cag cag gac atc gag atg gca att tta act gcc 1221
 Met Gly Ser Glu Gly Gln Gln Asp Ile Glu Met Ala Ile Leu Thr Ala
 280 285 290

ctg ctg aaa gga aca aac gta tct gct cca gat cag ctg agc ttg gca 1269
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 Leu Ala Trp Asn Arg Val Asp Ile Ala Arg Ser Gln Ile Phe Val Phe
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 Gly Pro His Trp Thr Pro Leu Gly Ser Leu Ala Pro Pro Thr Asp Ser
 325 330 335 340

aaa gcc acg gag aag gag aag aag cca ccc atg gcc acc acc aag gga 1413
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 345 350 355

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 360 365 370

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 375 380 385

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 405 410 415 420

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 Leu Thr Ile Pro Arg Leu Glu Glu Leu Tyr Asn Thr Arg Leu Gly Pro
 425 430 435

cca aac aca ctt cat ctg ctg gtg agg gat gtg aaa aag agc aac ctt 1701
 Pro Asn Thr Leu His Leu Leu Val Arg Asp Val Lys Lys Ser Asn Leu
 440 445 450

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Pro Pro Asp Tyr His Ile Ser Leu Ile Asp Ile Gly Leu Val Leu Glu	
455 460 465	
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Tyr L u Met Gly Gly Ala Tyr Arg Cys Asn Tyr Thr Arg Lys Asn Phe	
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Arg Thr Leu Tyr Asn Asn Leu Phe Gly Pro Lys Arg Pro Lys Ala Leu	
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Lys Leu Leu Gly Met Glu Asp Asp Glu Pro Pro Ala Lys Gly Lys Lys	
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520 525 530	
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Pro Ala Val Ser Arg Phe Gln Tyr Pro Phe His Glu Leu Met Val Trp	
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Ala Val Leu Met Lys Arg Gln Lys Met Ala Val Phe Leu Trp Gln Arg	
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Gly Glu Glu Ser Met Ala Lys Ala Leu Val Ala Cys Lys Leu Tyr Lys	
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Ala Met Ala His Glu Ser Ser Glu Ser Asp Leu Val Asp Asp Ile Ser	
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cag gac ttg gat aac aat tcc aaa gac ttc ggc cag ctt gct ttg gag	2181
Gln Asp Leu Asp Asn Asn Ser Lys Asp Phe Gly Gln Leu Ala Leu Glu	
600 605 610	
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Leu Leu Asp Gln Ser Tyr Lys His Asp Glu Gln Ile Ala Met Lys Leu	
615 620 625	
ctg acc tac gag ctg aaa aac tgg agc aac tcg acc tgc ctc aaa ctg	2277
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630 635 640	
gcc gtg gca gcc aaa cac cgg gac ttc att gct cac acc tgc agc cag	2325
Ala Val Ala Ala Lys His Arg Asp Phe Ile Ala His Thr Cys Ser Gln	
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Met Leu Leu Thr Asp Met Trp Met Gly Arg Leu Arg Met Arg Lys Asn	
665 670 675	
ccc ggc ctg aag gtt atc atg ggg att ctt cta ccc ccc acc atc ttg	2421
Pro Gly Leu Lys Val Ile Met Gly Ile Leu Leu Pro Pro Thr Ile Leu	
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 gca gat gct ggc tca aga aag ggg gat gag gag aac gag cat aaa aaa 2565
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 725 730 735 740
 cag aga att atc ccc atc gga aca aaa atc tgt aaa ttc tat aac gcg 2613
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Ile Val Leu Glu Tyr Leu Gln Glu Glu Pro Pro Ile Pro Val Val Ile
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 Val Phe Gly Lys Gly Leu Ile Lys Ala Ala Met Thr Thr Gly Ala Trp
 50 55 60
 Ile Phe Thr Gly Gly Val Ser Thr Gly Val Ile Ser His Val Gly Asp
 65 70 75 80
 Ala Leu Lys Asp His Ser Ser Lys Ser Arg Gly Arg Val Cys Ala Ile
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 Gly Ile Ala Pro Trp Gly Ile Val Glu Asn Lys Glu Asp Leu Val Gly
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 Lys Asp Val Thr Arg Val Tyr Gln Thr Met Ser Asn Pro Leu Ser Lys
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 Leu Ser Val Leu Asn Asn Ser His Thr His Phe Ile Leu Ala Asp Asn
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 Ile Val Leu Glu Tyr Leu Gln Glu Glu Pro Pro Ile Pro Val Val Ile
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 Tyr Cys Glu Glu Gly Gly Ile Ile Asn Glu Ser Leu Arg Glu Gln Leu
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